

**SOUTHWEST FISHERIES SCIENCE CENTER**  
**SECOND QUARTER REPORT-FY 2001**  
For the Period January 1, 2001 - March, 31, 2001

**SUBMITTED BY:** John R. Hunter, Division Director, Fisheries Resources Division

**Title of Accomplishment or Milestone:** Southern California juvenile shark survey.

**Current Status of Accomplishment or Milestone:** The juvenile shark abundance survey, conducted intermittently since 1994, continued in 2000 and is scheduled for June 2001. Current plans include trend analysis, abundance indexing, and a series of ancillary experiments providing information on reproductive biology, age and growth, movement patterns, and post-release survival.

**Background:** The California/Oregon driftnet fishery catches a significant number of juvenile thresher, mako and blue shark. These stocks are transboundary with northern Mexico where they have recently come under increased fishing pressure from commercial fishing. Currently, there are no stock assessments for these species although they will soon be managed under a new fishery management plan. The National Plan of Action for Sharks (NPOA) further requires stock assessments within two years. In support of assessments, indices of relative abundance and changes in size of catch can provide fishery managers with important information on stock condition.

**Purpose of Activity:** In an effort to determine stock condition for these sharks the Fisheries Resources Division initiated the survey to index relative abundance of juvenile shortfin mako and blue shark in the Southern California Bight during 1994. It provides fishery-independent data on changes in relative abundance, size of catch and provides life history information needed to address issues of stock condition.

**Description of Accomplishment (e.g., to the Center, to Management, and to NMFS Strategic Plan Goals) and significant results:** Average catch rates of shortfin mako sharks in the survey have been declining. The most recent survey (June 19 and July 16, 2000) sampled 34 stations indicating the catch rate of shortfin mako continued to decline from an average of 1 - 4 mako per 100 hook-hours between 1994 and 1997 to 0.5 in the 2000 survey. During 2000, the catch rate for blue shark increased in four sampling areas. Size of catch declined each year. The low catch rates indicate the need for continued fishery-independent monitoring. The survey was expanded in June 2000 to examine changes in that southern California thresher population, which occupies specialized habitat, movement and feeding behaviors. In total, 51 mako, 34 thresher and 1,003 blue sharks were captured, examined and released in 2000. Forty (40) mako and 31 thresher sharks were tagged and injected with oxytetracycline (OTC) for ongoing age and growth studies. This brings to 64 and 96 the total number of mako and thresher sharks tagged with OTC since 1995. Total recaptured to date is 3.8%. Blood was drawn from 24 threshers, 38 mako and 68 blue sharks (totals are 57 thresher, 71 mako and 101 blue) for studies on condition at capture and post release survival studies. Preliminary assay of blood chemistry indicates very high catecholamines and lactate levels in all three species when compared to resting, captive

sharks. The recapture rate of nearly 4% indicates these sharks can tolerate the observed elevated levels.

**Significance of Accomplishment:** This survey provides the only fishery-independent assessment of abundance for juvenile, pelagic shark off the West Coast. It further accomplishes recommendations in both the International- and National Plan of Action for Sharks (IPOA and NPOA). Results to date indicate some declines in cpue and/or size of catch. Concurrent studies are providing valuable information on the life histories and efficacy of these populations.

**Problems:** None

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